

# ***Aspectual implications of the semantics of plural indefinites***

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## Abstract

The singular/plural distinction raises many questions for the semantics of indefinite noun phrases, as witnessed by a lively debate in the recent literature. In this paper, I relate this discussion to some old questions in the aspectual literature. The study focusses on French, in order to avoid interference with the bare/non-bare distinction and generic reference. On the one hand, sentences involving plural indefinite NPs of the form *des N* are characterized as atelic or durative, whereas both indefinite singular NPs (*un N*) and definite singular and plural NPs (*le N/les N*) lead to telicity or terminativity. On the other hand, *des* NPs are the only NPs that allow bare habitual readings, as in *Paul répare des bicyclettes* ('Paul repairs bikes'). I treat *des* NPs as plural indefinites in the article paradigm of French count nouns, and argue that weak quantificational force and lack of determined reference characterize their semantics. This combination leads to atelicity, because there is nothing in the semantics of *des* NPs that can bound the mapping from individuals to events. It allows bare habitual readings, because there is nothing that blocks the combination of a cumulative interpretation with a one-one relation between individuals and events.

# 1. Indefiniteness, plurality, and aspect

## 1.1 *The general perspective*

In the recent literature on indefinites, morphological and semantic number has been an important topic of discussion. Singular indefinites behave differently from plural indefinites in several respects. Zamparelli (2005) provides a recent overview. This difference has implications for the analysis of several linguistic phenomena. So far, the accent has mostly been on implications of the number parameter for generic reference (Chierchia 1998, Dayal 2004, Krifka 2004, Farkas and de Swart 2004), and incorporation (Dayal 1999, 2005, Farkas and de Swart 2003). Some attention has been paid to the singular/plural distinction in constructions of coordination (Heycock and Zamparelli 2003, Roodenburg 2004a, b), and in predicate nominals (Munn and Schmidt 2005, de Swart et al. 2004). To the best of my knowledge, other empirical phenomena have not been studied from this perspective. In this paper, I want to extend the discussion to aspectual implications of the semantics of number. On the one hand, the paper hopes to contribute to the discussion on morphological and semantic number in the domain of indefinites, by testing some of the hypotheses proposed in the literature on a different range of examples, and probing their explanatory value. On the other hand, I intend to exploit recent insights on the semantics of indefinite plurals in order to shed light on their aspectual behavior.

I will take French as my language of study. French has the advantage of having a morphological indefinite singular article, as in *un livre* ('a book'), as well as a morphological indefinite plural, as in *des livres* ('indef-pl books'), so this choice avoids interference with the bare/non-bare distinction. *Des* is traditionally described as the partitive article, but it does not necessarily have a partitive meaning. In fact, the partitive reading is fairly difficult to obtain, although it exists (cf. Bosveld-de Smet 1998, Kleiber 2001, Dobrovie-Sorin & Beyssade 2004). *Des* differs from expressions like *quelques* ('some'), *plusieurs* ('several') in that it is more like an article than like a quantifier. In section 2 below, we will discuss a range of criteria based on work by Bosveld-de Smet (1998) that classify both *les* and *des* as expressions with weak quantificational force, rather than full generalized quantifiers. Semantically, *des* NPs are very close to bare plurals in Germanic languages, as argued by Bosveld-de Smet (1998) and Roodenburg (2004b). However, *des* is not used to express generic generalizations (cf. de Swart and Farkas 2004 and references therein). So if we make French our language of study, we also avoid interference with the discussion on generic reference. These two aspects of the form and meaning of *des* help us focus on the questions we are concerned with in this paper, namely the semantic effects of indefinite plurals on the aspectual character of the sentence. I assume that some of the crucial insights carry over to languages that use bare plurals rather than plurals with a morphologically overt indefinite article, but I leave it for another occasion to explore the consequences of my proposals for such languages.

## 1.2 *Two classical questions, and two basic assumptions*

Although it has been clear from the study of aspect from the seventies onwards (Verkuyl 1972, Bennett and Partee 1978, Dowty 1979, etc) that the semantic character of nominals in object position (and, to a lesser degree, in subject position) heavily

influences the aspectual nature of the sentence as a whole, it has proven difficult to provide a full explanation of the interaction. Here, I focus on two classical questions:

- How do we explain the telicity/atelicity (or terminative/durative) contrast in *tricoter un chandail norvégien* ('knit a Norwegian sweater') versus *tricoter des chandails norvégiens* ('knit Norwegian sweaters'), as observed by Vet (1980: 86).
- How do we explain the contrast between episodocity/habituality in *réparer une bicyclette* ('repair a bike') versus *réparer des bicyclettes* ('repair bikes'), where only the second expression has a habitual interpretation paraphrasable as *réparateur de bicyclettes*, 'bike repair person', cf. Vet (1980:218).

The following two assumptions are needed to formulate an answer to these questions:

- (i) *Des* N denotes a plural.
- (ii) *Des* is not a quantifier, but an indefinite article

Strictly speaking, nothing is new about these assumptions. Still, they are not entirely uncontroversial. The claim in (i) probably corresponds with the views developed in traditional grammars, and with our 'naïve' intuition. However, it has recently been under attack in work by Spector (2003), Matushansky and Ionin (2004), and Roodenburg (2004b). I will rely on Farkas (this volume) to support my claim that *des* NPs have a plural semantics. The assumption in (ii) reflects a classical insight, but the consequences of this view for telicity and habituality have not been properly explored. I will rely on Farkas (2002) and de Swart and Farkas (2004) to develop an account of the definite/indefinite contrast in terms of markedness, and claim that *des* NPs lack the property of determined reference.

The structure of this paper is as follows. Section 2 defines the two components of the semantics of *des* that make it a plural indefinite article, namely weak quantificational force, and lack of determined reference. The combination of these two components leads to atelicity, and accounts for the observation made by Vet (1980) that the aspectual role of *des* in *tricoter des chandails norvégiens* is to express *un nombre indéterminé de transitions* ('an undetermined number of transitions').

Section 3 reviews the assumption that *des* denotes a plural, and supports the view, most clearly defended by Farkas (this volume) that morphological plurality induces semantic plurality. The account motivates a treatment of bare habituals as a temporal variant of the so-called 'dependent' readings we find in sentences like 'Unicycles have wheels'. My analysis of habituality extends ideas developed by Bosveld-de Smet (1998). Section 4 concludes.

## 2. The role of *des* NPs in the telicity/atelicity contrast.

### 2.1 *The weak quantificational force of des.*

As briefly argued in section 1.1 above, we take *des* to be a plural indefinite article. We adopt the following morphological article paradigm for count nouns in French:<sup>1</sup>

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<sup>1</sup> Bosveld-de Smet (1998) focusses on *des* NPs as well as on *du* NPs, such as *du sable* ('indef-ms sand'), *du vin* ('indef-ms wine'). As the examples indicate, *du* NPs involve mass nouns. Although interesting complications arise in the interaction of semantic number and mass nouns (cf. Roodenburg

article	indefinite	Definite
singular	<i>un</i>	<i>Le</i>
plural	<i>des</i>	<i>Les</i>

According to this table, we have four articles for count nouns, distributed along the two parameters of definiteness and number. The observation that *un* and *des* occur in predicate nominals in attributive sentences expressing set inclusion strongly supports the view that *des* counts as an indefinite article in modern French:

- (1) a. Cet insecte est un doryphore.  
This insect is a Colorado beetle.  
b. Ces insectes sont des doryphores.  
These insects are indef-pl Colorado beetles.  
c. Les doryphores sont les insectes les plus destructifs.  
These Colorado beetles are the most destructive beetles.

Bosveld-de Smet (1998: 12) provides the examples in (1), and points out that definite plurals in predicate nominal positions occur in sentences like (1c), but have an interpretation in terms of identity, rather than inclusion or attribution of a property. Just like their English counterparts, indefinite NPs involving *quelques* ('some') or *plusieurs* ('several') do not occur in predicative contexts. Thus the examples in (1) indicate that *des* counts as the plural counterpart of the indefinite article *un*.

Bosveld-de Smet (1998) claims that *des* has weak quantificational force, in contrast to other indefinites. She lists the following four environments to support her view. The examples and translations are hers.

(i) Compatibility with inherently collective predicates of high degree (so-called 'crowd' predicates).

- (2) a. Les/Des/\*Plusieurs badauds affluaient de tous côtés.  
The/Indef\_pl/Several loafers flocked from all quarters.  
b. Il entassait les/des/\*trois livres sur son bureau.  
He piled the/indef\_pl/three books on his desk.

(ii) Incompatibility with distributive modifiers.

- (3) a. Paul mange \*des/plusieurs pommes par jour.  
Paul eats indef\_pl/several apples a day.  
b. Il faut compter \*des/deux tasses de café par personne.  
You should count indef\_pl/two cups of coffee per person.

(iii) Compatibility with quantitative modifiers.

- (4) a. Ces pommiers ont des/\*quelques/\*beaucoup de fruits à provision.  
These apple trees have indef\_pl/some/many fruits in abundance.

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2004b), I will not address the issue of mass nouns here, and limit myself to examples with count nouns, which exhibit an explicit singular/plural contrast. Thus, I focus on *des* NPs, and leave the semantics of *du* NPs for another occasion.

- b. Des moutons par centaines on traversé la rivière.  
Indef\_pl sheep by hundreds have crossed the river.

(iv) Compatibility with qualitative modifiers .

- (5) Il y avait des/\*trois/\*beaucoup de chiens de toutes les formes, de toutes les origines.  
There were indef\_pl/three/many dogs of all forms, of all origins.

According to Bosveld-de Smet, the main characteristic that distinguishes *des* from indefinites like *quelques*, *plusieurs*, *beaucoup de*, etc. is its vague or unspecific character with respect to quality and quantity.

We can extend the discussion to the definite plural article *les*. The same environments that support the weak quantificational force of *des* indicate that *les* has a similar character, as illustrated by the examples in (6):

- (6) a. Les badauds affluaient de tous les côtés.  
The loafers flocked from all quarters.
- b. \*Il mange les pommes par jour.  
He eats the apples a day.
- c. \*Il faut compter les tasses de café par personne.  
You should count the cups of coffee per person.
- d. Les gorilles meurent par centaines.  
The gorillas die by the hundreds.

*Les* occurs with ‘crowd’ predicates (6a), is incompatible with distributive modifiers (6b,c), and is compatible with quantitative modifiers (6d). The plural articles *les* and *des* contrast with *un* and *le* in this respect, which pattern with indefinite determiners and other quantifiers. Presumably, this is due to the fact that singulars have atomic reference by default (cf. Farkas this volume). Expressions that have atomic reference then have strong quantificational force, because the cardinality of the relevant set is fixed. The conclusion I draw from this discussion is that their lacking of quantificational force is caused by the plural nature of the articles *les* en *des*.

## 2.2 Weak quantificational force and the telicity/atelicity contrast

Lack of quantificational force plays an important role in Verkuyl’s (1972, 1993) explanation of the role of nominals in determining the aspectual character of the sentence as a whole. However, lack of quantificational force in the sense that we have defined this notion in section 2.1 is insufficient to explain the aspectual behavior of *des* NPs, for both definite and indefinite plurals in French have weak quantificational force according to the distributional criteria proposed by Bosveld-de Smet (1998), but only indefinite plurals lead to atelicity/unboundedness/durativity. The well-known test that brings out the contrast between telicity/boundedness/terminativity and atelicity/unboundedness/durativity is the compatibility with *en* and *pendant* adverbials. *En* is like English ‘in’ in that it presents the sentence as a terminative event, while *pendant* is like English ‘for’ in that it describes a durative event. The French test is discussed by Vet (1980) and de Swart (1998) among others. Bosveld-de Smet (1998) uses the test to bring out the contrast between *des* NPs on the one hand and *un* NPs and *les* NPs on the other:

- (7) a. Marie a cueilli des fraises pendant des heures.  
Marie has picked indef-pl strawberries for hours.  
b. \*Marie a cueilli des fraises en une heure.  
Marie has picked indef-pl strawberries in an hour hour.
- (8) a. \*Marie a cueilli une fraise/les fraises pendant des heures.  
Marie has picked a strawberry/the strawberries for hours.  
b. Marie a cueilli une fraise/les fraises en une heure.  
Marie has picked one strawberry/the strawberries in an hour.

The analysis of English (Dowty 1979) and Dutch (Verkuyl 1972) has highlighted the observation that the character of the nominal argument influences the aspectual character of the sentence as a whole. In Verkuyl's (1972) terminology, indefinite singular NPs like *een aardbei* ('a strawberry) have the feature [+SQA], as an abbreviation of 'referring to a specified quantity of A', where A stands for the interpretation of the common noun (here: strawberries). If we extend Verkuyl's study of Dutch to French, we would claim that the indefinite singular *une fraise* ('a strawberry') in (8a) would be [+SQA]. Indefinite plural NPs like *des fraises* ('indef-pl strawberries') on the other hand, are [-SQA], indicating a lack of reference to a specified quantity of A. The so-called Plus principle expresses the fact that only positive values lead to terminative aspect. Any minus value creates an aspectual 'leak' that blocks terminativity (telicity), and leads to durativity (atelicity).<sup>2</sup>

In Verkuyl (1993), the notion of 'specified quantity of A' gets a model-theoretic interpretation. Cardinality information of the relevant set determines the plus or minus value of the feature. A path function guarantees the mapping from individuals to events in such a way that [+SQA] NPs contribute towards terminativity by imposing a bound on the mapping, whereas [-SQA] NPs lead to durative sentences for lack of imposing such a bound (cf. Krifka 1989 for event-based analysis). The technical details are irrelevant for us, but it is tempting to relate the lack of determined cardinality information to weak quantificational force as defined in section 2.1 above. However, that would leave the [+SQA] value of definite plurals unexplained, for *les fraises* lacks quantificational force, but does not lead to atelicity, as illustrated in (8). Verkuyl (1993: 129-131) is aware of the problem, but does not have a real solution. In my view, a dynamic analysis of definiteness provides the key. Heim (1982) made it sufficiently clear that the definite/indefinite contrast cannot be fully described in denotational terms, and requires a discourse analysis that implies update of information. In section 2.3, we will draw up such a dynamic theory of definites. In section 2.4, we will show that the combination of lack of quantificational force and lack of definiteness that explains the atelic nature of sentences like (7a).

### 2.3 Indefinites lack determined reference

There are many theories about the definite/indefinite contrast, and this is not the place to review them all. Instead, I will just elaborate on the proposals made by Farkas (2002) and de Swart and Farkas (2004), because they prove to be useful in exploring the aspectual implications of the definite/indefinite contrast. Farkas (2002) frames her

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<sup>2</sup> Verkuyl's system also involves a [ $\pm$  ADD TO] feature for the verb. Given that we are only concerned with non-stative verbs in this paper, I can safely leave out this feature.

analysis in Discourse Representation Theory (DRT, cf. Kamp and Reyle 1993). Just like Heim's (1982) file change semantics, this is a dynamic framework that formulates an incremental interpretation process. Discourse representation structures (DRS) constitute a level of representation for the discourse. The DRS is interpreted in the model via an embedding function  $f$ . Updates of the DRS lead to extensions of the embedding function  $f$ . According to Farkas (2002), both definite and indefinite NPs introduce discourse referents. In contrast to generalized quantifiers, they do not introduce 'box splitting' operations, so they do not create a tripartite structure with a restrictor and a scope. The contrast between definites and indefinites is formulated in terms of markedness. Definites have the property of what Farkas calls 'determined reference'. Indefinites simply lack this property. Thus definites are marked, whereas indefinites are unmarked. Determined reference means that the choice of the referent is determined, fixed. Determined reference is defined as follows (Farkas 2002):

- Let  $K'$  be the DRS obtained by merging the input DRS  $K$  with the DRS  $K_e$ , and let  $x$  be in the universe of  $K_e$ , but not in that of  $K$ . The variable  $x$  has determined reference iff for every  $f$  that embeds  $K$ , it holds that for every  $f', f''$  that extend  $f$  and which satisfy the value conditions in  $K_e$ , it holds that  $f'(x) = f''(x)$ .

In words: a variable  $x$  has determined reference if the value assigned to the discourse referent in the model remains stable across further developments of the discourse. For proper names and anaphoric pronouns, this is quite clear. For a proper name like *Claire*, there is a relation of identity  $u=c$  as a condition in the DRS. Here  $u$  is the discourse referent introduced by the proper name, and  $c$  is the constant that picks out the bearer of the name in the model, thanks to the interpretation function paired with the model. For anaphoric pronouns like *il* ('he') or *elle* ('she'), the DRS condition is  $u=v$ , where  $v$  is a discourse referent introduced by an expression earlier in the discourse, and accessible to  $u$  in the DRS. In this paper, we are mostly interested in definite descriptions. For singular definite NPs, determined reference corresponds with uniqueness (9a) or anaphoricity (9b) (Farkas 2002):

- (9) a. The planets turn around *the sun*.  
 b. A man and a woman came in. *The man* sat down.

In (9a), the referent of *the sun* is unique in our solar system, so determined reference is here based on knowledge of the world. The determined reference of (9b) is established by an identity relation with a discourse referent introduced earlier in the DRS, so anaphoric definites are treated in a similar way as anaphoric pronouns.

For plural definites, determined reference corresponds with maximal reference within the context (10a,b), or anaphoricity (10c) (de Swart en Farkas 2004):

- (10) a. *The planets* revolve around the sun.  
 b. (Looking at a painting that has two apples in the foreground).  
*The apples* are beautiful!  
 c. Mary bought apples<sub>*i*</sub>. *The apples<sub>*i*</sub>* are on the countertop.

The context for (10a) is our solar system, so (10a) compares to (9a). In (10b), maximality is constrained by the deictic situation. In (10c), the referent for *the apples* is introduced by the previous context. Maximality is model-theoretically defined as denoting the 'top' of the lattice constituted by sum formation of the individuals that

are member of the denotation of the count noun. The idea that plurality is taken to involve sum formation in a lattice-theoretical structure goes back to Link (1983), and has been generally accepted since then. The top of the lattice is then the maximal sum of individuals in the model. Maximality boils down to uniqueness in the sense that the lattice has just one top that constitutes the maximal sum.

The relevance of this approach for our concerns is that Farkas (2002) and de Swart and Farkas (2004) treat the definite article as a marker of determined reference. The use of the definite article signals that the speaker wants the hearer to interpret the discourse referent introduced by the definite description as a variable that has determined reference. In the perspective sketched here, indefinites constitute the unmarked case: they simply lack the property of determined reference. As a consequence, they conversationally implicate an interpretation in terms of the complement of determined reference. We can establish a Horn scale of <indefinite, definite>, for the meaning of a definite is stronger than that of an indefinite under the markedness view. We can use this scale to derive a conversational implicature built on the Gricean maxim of quantity. Accordingly, an indefinite gets the meaning of non-definite (i.e. non-unique, non-maximal, non-anaphoric, non-determined reference). Szabolcsi (1997) characterizes the potential opening to ‘more’ or ‘others’ as an important characteristic of indefinites. However, the current analysis takes this to be part of a pragmatic interpretation process, and not as the core semantics of indefinites, which is undermarked. As a conversational implicature, non-uniqueness can be cancelled under certain circumstances. Farkas (this volume) draws our attention to ‘singleton indefinites’ as in (11) to support this:

(11) We will watch *a movie that Phil said he liked the best*.

We take the sentence to mean that there is only one movie Phil said he liked the best. For some reason, the implicature of non-uniqueness has been suspended in (11).

Along similar lines, Bosveld-de Smet (1998: 41-43) provides examples with *des* that do not necessarily block maximality:

- (12) a. Des étudiants ont manifesté.  
 Indef\_pl students have demonstrated.  
 b. Des maraudeurs ont cueilli des fruits mûrs pendant la nuit.  
 Indef\_mv marauders have picked indef-pl ripe fruits during the night.

(12a) can easily be paraphrased as an existential sentence ‘There was a demonstration of students’. The focus is on the collective participation in a single event, and we do not get any indication as to the question whether all the students were involved, or only a subset of them was. (12b) gets a cumulative interpretation, in which there is general indeterminacy as to which individuals, collections or subcollections are related by the transitive verb. Accordingly, there are many different situations that verify these sentences. We can add that this may very well include situations in which there are no relevant other students or marauders, in which case there is no non-maximal reference. In sum, the fact that we do not use *les* in (12) means that the speaker does not make an assertion of determined reference. Often, the use of *des* triggers an implicature of non-maximality. However, sentences like (12) support the view that this is only an implicature, which can be suspended.

The analysis of the definite/indefinite contrast in terms of determined reference proves to be the final ingredient of the account of the telicity/atelicity contrast for plurals, as we will show in section 2.4.

#### 2.4 *The combination of indefiniteness and plurality leads to atelicity*

The basic telicity/atelicity contrasts have been established by Vet (1980: 86, 87):

- (13) a. Katinka tricotait un chandail norvégiens.  
 Katinka knitted a Norwegian sweater.  
 b. Katinka tricotait des chandails norvégiens.  
 Katinka knitted indef-pl Norwegian sweaters.  
 c. Katinka tricotait ces/les chandails norvégiens.  
 Katinka knitted these/the Norwegian sweaters.

According to Vet (1980), these sentences refer to a transitional situation, that is, a situation that involves a change in state. Obviously, knitting a sweater is an action that can be accomplished fast or slowly, but that has an inherent endpoint defined by the mapping of the individual onto the time frame. Accordingly, (13a) qualifies as a telic or terminative sentence. Although (13b) involves the same kind of transitional situation as (13a), it is not telic or terminative. According to Vet, (13b) refers to a situation that can be decomposed in *un nombre indéterminé de situations* ('an undetermined number of situations'). It is the indeterminacy of the number of situations that is responsible for the atelic or durative nature of the sentence. Vet then establishes a comparison between (13b), and the terminative sentence in (13c). He argues that the number of transitions in (13c) is *déterminé* ('determined'), which accounts for the terminative aspect of the sentence. Vet's account is closely related to Verkuyl's (1972) explanation in terms of the features [+SQA] and [-SQA]. However, we know from section 2.2 above that it is unclear why *les* and *des* differ in their value for this feature in view of the fact that both expressions have weak quantificational force, according to the criteria established by Bosveld-de Smet (1998). The question that remains to be answered is how *des* as an indefinite article leads to *un nombre indéterminé de transitions*, whereas the definite article *les* leads to *un nombre déterminé de transitions*. In view of the discussion in section 2.3, it seems obvious that the notion of determined reference should provide the key to the explanation.

My basic proposition is that either strong quantificational force or determined reference is sufficient to derive telicity. Within the system of articles, quantificational force is related to number: singulars have strong quantificational force; plurals have weak quantificational force. Determined reference is related to the definite/indefinite contrast: definites have determined reference; indefinites simply lack this property. Now that we have defined all the meaning components, it is easy to show that out of the four possible combinations, three lead to telicity, and only one leads to atelicity:

##### (i) Indefinite singulars

- Typical example: *tricoter un chandail norvégien* ('knit a Norwegian sweater').
- Aspectual characterization of the sentence: telicity/terminativity.
- Explanation: Singular NPs have strong quantificational force, because singulars have atomic reference by default (cf. section 2.1 above and Farkas, this volume). The lack of determined reference for indefinite singulars may lead to freedom of choice in determining the referent, in accordance with the semantics of indefinites (cf. section

2.3 above). However, the lack of determination can only relate to the identity of the referent, the cardinality value of singulars being fixed by default atomic reference. That is, other embedding functions might have made the sentence true as well, but they would also have picked out a single individual as the value of the discourse referent. The consequences for the mapping from individuals to events are as follows: the mapping of an undetermined atomic individual to the domain of events creates a singular event. Consequently, the use of an indefinite singular maintains the telic or terminative aspect of the sentence thanks to atomic reference, and *tricoter un chandail norvégien* describes a situation with an inherent endpoint provided by the object.

(ii) Definite singular

- Typical example: *manger la pomme que je t'avais donnée* ('eat the apple that I gave you').
- Aspectual characterization of the sentence: telicity/terminativity.
- Explanation: Singular NPs have strong quantificational force, because singulars have atomic reference by default (cf. section 2.1 above and Farkas, this volume). Determined reference means that the value for the variable is fixed, and preserved for the rest of the discourse (cf. section 2.3 above). So the referent is fully determined, both in number (atomic reference) and in terms of identity (determined reference). The consequences for the mapping from individuals to events are as follows: the mapping of a determined atomic individual to the domain of events creates a singular event involving a particular individual. An example like *manger la pomme que je t'avais donnée* is easily used in a context where I put an apple into Katinka's lunchbox every day, and I check at the end of the day whether she ate the one specific apple that I gave her that day. The definite singular maintains the telic or terminative aspect of the sentence thanks to the combination of atomic and determined reference.

(iii) Definite plural

- Typical example: *manger les sandwiches que je t'avais donnés* ('eat the sandwiches that I gave you').
- Aspectual character of the sentence: telicity/terminativity.
- Explanation: Plurals have weak quantificational force (cf. section 2.1 above), and the cardinality of the set of individuals is not fixed. So this aspect of the meaning of indefinite plurals cannot impose a bound on the mapping from individuals to events. However, the use of the definite article indicates that the variable has determined reference (cf. section 2.3 above). This implies that the plural referent in the model is fixed by maximality or anaphoricity. Although the cardinality of the set is unknown (weak quantificational reference), we know there is a unique maximum (determined reference). The consequences for the mapping from individuals to events are as follows: the mapping of a determined plural individual to the domain of events creates a singular or plural event involving a uniquely defined, plural set of individuals. Determined reference imposes boundedness on the event(s), for once the maximal set of referents has mapped onto the time frame, the inherent endpoint is reached. The determined reference of the definite plural thus guarantees the telic or terminative aspect of the sentence. However, no indication of the number of events is given. An example like *manger les sandwiches que je t'avais donnés* is easily used in a context where I put a number of sandwiches into Katinka's lunchbox every day, and I check at the end of the day whether she ate all the sandwiches that I gave her. She does well

if the lunchbox is empty, and I don't care whether she ate them in the morning, at lunchtime, or after school.<sup>3</sup>

(iv) Indefinite plural

- Typical example: *tricoter des chandails norvégiens* ('knit Norwegian sweaters').
- Aspectual character of the sentence: atelicity/durativity.
- Explanation: Plurals have weak quantificational force (cf. section 2.1 above), and the cardinality of the set of individuals is not fixed. So this aspect of the meaning of indefinite plurals does not impose a bound on the mapping from individuals to events. The lack of determined reference that is part of the semantics of indefinites (cf. section 2.3 above) does not contribute boundedness either: neither the identity of the referents, nor the cardinality of the set is specified in any way by the indefinite article. The consequences for the mapping from individuals to events are as follows: the indefinite plural does not impose a bound on the mapping, so event boundaries are not set. Accordingly, the use of an indefinite plural can create an *un nombre indéterminé de transitions*, as in *tricoter des chandails norvégiens* ('knit indef-pl Norwegian sweaters'). World knowledge suggests that we work on one sweater at a time, so the interpretation here is in terms of undetermined number of events. However, nothing blocks the creation of an unbounded singular event, for plurality of events is in no way asserted. An unbounded singular event is a possible interpretation for examples like *manger des frites* ('eat French fries'), where it is likely that a plurality of fries are involved in a single eating event. A sentence like *Katinka mangeait des frites* ('Katinka ate French fries') can thus describe an unbounded single event of eating fries, or an unbounded series of events each involving an undetermined amount of fries. In sum, the lack of determination on identity or cardinality of the referents associated with the semantics of indefinite plurals implies that they cannot impose any boundaries on the even(s) they maps onto, and many different situations can make the sentence true. The semantics of *des* NPs makes it impossible to maintain telicity, and we end up with a durative sentence.<sup>4</sup>

Schematically, the aspectual interpretations are related to a combination of semantic number and definiteness:

article	definite	indefinite
singular	telic	telic
plural	telic	<b>atelic</b>

Either atomic reference or determined reference is enough to guarantee telicity/terminativity. Only the absence of the two in indefinite plurals leads to atelicity.

At this point, we must make a caveat. The analysis crucially depends on the view that *des* NPs have a plural denotation (cf. assumption (i) in section 1.1 above). If that assumption proves incorrect, the argumentation fails. In section 3, we will rely on Farkas (this volume) to support the view that *des* NPs have a plural denotation. We will exploit that analysis to provide an account of *des* NPs in habitual sentences.

<sup>3</sup> Cf. Verkuyl (1993) for similar claims about the underspecification of the number of events involved in the completion of the action.

<sup>4</sup> Note that this explanation supports with Verkuyl's (1972, 1993) view that durativity is 'negatively' defined as absence of terminativity.

### 3. Des NPs in bare habituals.

#### 3.1 Homogeneous reference and plurality

Farkas and de Swart (2003) claim that morphologically singular nouns are semantically number neutral, whereas morphological plurals are semantically plural. More precisely, they claim that a singular noun involve just a thematic argument, a ‘shadow’ argument in the sense of Kamp and Rossdeutscher (1994) and Koenig and Mauener (2000). Accordingly, the use of bare singulars in regular argument position is blocked, such positions require the introduction of a discourse referent. Bare singulars are found in incorporation languages, because incorporation involves a special semantic process of unification, defined as the combination of two thematic arguments. Neither English nor French is such a language, so we do not find bare singulars in these languages (pace the exceptions discussed in Roodenburg 2004a,b, that do not affect the basic claim made here). Morphologically plural nouns involve a thematic argument as well, but on top of their descriptive content they introduce the presupposition that there must be a plural discourse referent for the nominal constituent. This presupposition can be bound by a determiner (in a DP structure), which imposes certain restrictions on the choice of determiner for a plural noun. In the absence of a determiner, the presupposition can be accomodated in certain languages. The result is a bare plural, which involves an NP structure, rather than a DP. Accomodation of a discourse referent is always ‘local’, never ‘global’. This explains the narrow scope of bare plurals, and the absence of ‘strong’, quantificational readings. Bare plurals are found in English, Hungarian, and several Romance languages, but not in French. I assume that French blocks the possibility of accomodation of the presupposition in view of the existence of an indefinite plural article. The constraint AvoidAccommodation, proposed by Zeevat (2000) favors binding over accomodation in general, and it could be exploited here to block bare plurals in French. The details of this line of explanation do not concern us at present, so we just assume that there exist languages in which accomodation of the plural presupposition is blocked, and French is one of them. French uses the indefinite article *des* in many contexts in which English and Dutch would use bare plurals.<sup>5</sup> It has been observed that *des* NPs avoid subject position, and tend to take narrow scope (cf. Bosveld-de Smet 1998, Roodenburg 2004b, and references therein). However, if *des* is a morphologically overt determiner that binds the presupposition of plurality, we expect ‘strong’ or wide scope readings for *des* to be available. Interestingly, such readings have been discussed in the French literature, and examples are given in (14):

- (14) a. Des amis que j’ai rencontrés hier m’ont insulté.  
Indef-pl friends whom I have met yesterday have offended me.  
(Bosveld-de Smet 1998)
- b. Des licornes sont blanches et d’autres noires (Kleiber 1981)  
Indef-pl unicorns are white and others black.
- c. Des basketteurs sont petits (Galmiche 1986)  
Indef\_pl basketball-players are small.

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<sup>5</sup> The most striking difference between English type bare plurals, and French type indefinite plurals is the fact that French *des* NPs are not used to express generic generalizations. This behavior is independent of the bare/non-bare contrast, because Romance bare plurals in general resist generic environments, and so do Hungarian bare plurals. This question is addressed in de Swart and Farkas (2004), and does not interfere with the discussion in this paper.

- d. Je veux acheter des chemises qui sont en vente dans ce magasin (Spector 2003)  
I want to buy indef\_pl shirts that are sold in this store.
- e. Si des cousins à moi meurent, je serai riche. (Spector 2003)  
If indef\_pl cousins of mine die, I will be rich.

In (14a), the *des* NP has a referential reading in the sense of Fodor and Sag (1982) (cf. also Kleiber 1981). (14b) illustrates how contrasting predicates and the use of *d'autres* ('others') can establish a partitive reading of the type: some are like this, others are like that. In (14c), the partitive reading is obtained thanks to world knowledge: we know that the typical basketball player is tall. (14d) illustrates the *de re/de dicto* ambiguity with plural indefinites in French. (14e) suggests a choice function reading, as discussed by Reinhart (1997). Of course partitive readings have been discussed for cardinals and *many/few* (cf. de Hoop 1991), and referential readings, *de re/de dicto* ambiguities and choice function readings are well known from the literature on singular indefinites. Needless to say, the relevant readings are not available for bare plurals in English.

For further discussion of the wide scope and 'strong' readings of *des* NPs, I refer the reader to Bosveld-de Smet (1998), Spector (2003) en Roodenburg (2004b). The main point to be made here is that the data in (14) support the general view on plurality developed in Farkas and de Swart (2003). The specific claim I make about the semantics of *des* is as follows:

- Semantics of *des* NPs:  
*Des* is a plural determiner that binds the presupposition introduced by the plural morphology on the noun. Accordingly, *des* NPs assert the existence of a discourse referent that allows groups as values. The discourse referent satisfies the descriptive content of the N (or NP). *Des* contributes no further quantificational or referential information.

According to this semantics, *des* binds the presupposition introduced by the plural nominal, and that's all it is doing. It contributes no further quantificational information (so it has weak quantificational force), and it contributes no further referential information (no assertion of determined reference). In the absence of a process of accommodation, French indefinite plurals can take wide scope under the right circumstances. However, this behavior is limited by the weak quantificational and referential properties of indefinite plurals, as opposed to those of singular indefinites, *quelques* ('some'), *plusieurs* ('several') and cardinals (cf. Lebruyne 2005).

For Bosveld-de Smet (1998), the homogeneity of English bare plurals and French *des* NPs is their central characterization. That homogeneity is of course responsible for the atelicity we discussed in section 2 above. In the most general scenario, the plurality in *des* NPs would be 'vacuous'. This would be the case in a domain that lacks atomic structure. In such a domain, mass nouns and plurals have the same reference, and qualify as 'uncountable' determiners. However, in many environments, we want to avoid partitions of the mass-like domain that do not correspond with atomic structures:

- (15) a. Books dropped out of the suitcase.
- b. The foot soldiers rapidly disappeared.

As Bosveld-de Smet (1998: 192) points out, we don't want partitions for (15) that allow for parts of a book to fall out of the suitcase, or for one-and-a-half soldier to disappear. For both definite and indefinite plurals, we need to restrict the partitions to elements of the set that is generated by the partition denoted by the count noun. In other words, cases like (15) indicate that we start from an atomic structure that builds 'real' plurals under sum formation in the lattice. I agree with Bosveld-de Smet (1998: 192) that the relevant partition is often vague. In relation to predicates like *eat*, *discern*, *spot*, *crush*, *flatten*, *burn*, we don't necessarily need to postulate atomic structure, and the existence of one, homogeneous domain seems to be attractive. But whereas Bosveld-de Smet is mostly concerned with the similarities between plurals and mass nouns, the aim of this paper is to account for the contrast between morphological singulars and plurals. In that perspective, the desire for a unified analysis of plurals and mass nouns seems to be less strong, and I will assume that atomic structure always provides the relevant partition in the examples discussed in this paper. On the basis of that assumption, I formulate the following claim:

- Semantic plurality of *des* in a countable domain:  
Under the assumption of generation from a countable N that has atomic structure, the homogeneous reference of *des* NPs can only be achieved under semantic plurality.

This claim fits well with the semantics of *des* that we just posited. However, it seems to conflict with recent proposals in the literature in which the morphologically plural noun is not interpreted as involving semantic plurality (Spector 2003, Matushansky and Ionin 2004, Roodenburg 2004b). Their views are incompatible with the claims made here. But without semantic plurality of *des* N, we would lose the straightforward connection between plurality, homogeneity, and indefiniteness that our explanation of the atelicity facts has been based on.<sup>6</sup> In section 3.2, I will briefly discuss the arguments against an interpretation of *des* NPs in terms of semantic plurality, and side with Farkas (this volume) who defeats their validity.

### 3.2 Against a number-neutral semantics for *des* NPs.

Spector (2003) provides four arguments in favor of his claim that *des* NPs are semantically number neutral, rather than plural. I will discuss three of them in this section, and relegate the discussion of habitual sentences to 3.3. The first claim concerns the well-known question-answer pair in (16) (cf. Corblin 1987):

- |      |                          |                            |
|------|--------------------------|----------------------------|
| (16) | - Avez-vous des enfants? | - Do you have children?    |
|      | - Oui, j'en ai un.       | - Yes, I have one (child). |
|      | - #Non, j'en ai un.      | - No, I have one (child).  |

The question in (16) can be felicitously answered with 'yes', even if the person has only one child.

The second claim concerns when-clauses, as in (17):

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<sup>6</sup> The issues these authors raise are different from Bosveld-de Smet's (1998) aim to postulate a uniform, homogeneous domain for plurals and mass nouns alike. Matushansky & Ionin (2004) and Spector (2003) are not concerned with mass nouns at all. Roodenburg (2004b) is, but the perspective he adopts is syntactic, and more closely related to Spector (2003) than to Bosveld-de Smet (1998).

- (17) Quand des Italiens vont à Paris, ils vont visiter le Louvre.  
When Italian people go to Paris, they visit the Louvre.

According to Spector (2993), (17) has a reading in which when one or more Italian persons go to Paris, he or they visit(s) the Louvre.

Farkas (this volume) defeats both arguments. She points out that in languages in which the singular is formally unmarked, the plural forms have two uses, the *exclusive plural* use, which excludes atomic reference, and the *inclusive plural* use, exemplified in contexts like (16, 17). As Farkas highlights, the inclusive plurals are not always good in environments that normally license them. Two of her example scenarios for questions are adapted to French in (18) and (19):

- (18) Avez-vous une voiture/#des voitures?      -Do you have a car/#cars?  
(19) Avez-vous une femme/#des femmes?      -Do you have a wife/#wives?

Farkas offers a pragmatic explanation of the infelicity of the use of the plural in these environments in terms of a violation of default expectations. All examples of this kind are infelicitous under the assumption that people normally have only one car, only one wife, etc. If the intended interpretation is exclusively atomic, an unmarked singular is the best possibility, under the generally accepted assumption that formally unmarked forms are preferred over formally marked ones. If an exclusive group interpretation is intended, the only possible form will be a plural one, since singulars receive an atomic interpretation by default. If the range of values is meant to include both atoms and groups, a plural form will be preferred, for the same reason. This is true for questions, when-clauses, etc. as the typical environments in which inclusive plural uses show up.

The third argument advanced by Spector (2003) concerns so-called ‘dependent’ readings. (20) is the standard example in English:

- (20) Monocycles have wheels

Crucially, each monocycle has only one wheel, so the plural morpheme on the object *wheels* is somehow licensed by the plural subject *monocycles*. In French, we find a similar phenomenon in sentences involving a plural subject, and a *des* NP object:

- (21) a. Les monocycles ont des roues.                      (Bosveld-de Smet 1998)  
The monocycles have indef-pl wheels.  
b. La plupart de mes amis ont acheté des voitures d’occasion  
Most of my friends have bought indef-pl second hand cars.  
(Laca and Tasmowski 2001)  
c. Les syndicats défendent des points de vue différents.  
The unions defend indef-pl opinions different.  
(Laca and Tasmowski 2001)

Not everyone seems to be convinced by the somewhat artificial example in (21a), which might shed doubt on the existence of dependent readings in generic environments in French. However, real examples of dependent readings of this type can be easily found on the internet, especially in jokes of the following type:<sup>7</sup>

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<sup>7</sup> I apologize if you don’t like the joke. I don’t think these sentences are particularly funny, but they illustrate the (linguistic) point I am trying to make.

- (22) a. Pourquoi les hommes portent-ils des cravates? Pour indiquer la direction de leur cerveau.  
Why do the man wear indef\_pl ties? To indicate the direction of their brains.
- b. Pourquoi les hommes épousent-ils des vierges? Ils ne supportent pas la critique.  
Why do the men marry indef\_mv virgins? They cannot stand to be criticized.
- c. Pourquoi les Français portent-ils des cravates jaunes? C'est pour aller avec leurs dents.  
Why do the French wear indef-pl yellow ties? It is to go with with their teeth.

The examples in (22) support the view that dependent readings exist in French, even in generic sentences that have the structure of (21a). According to Spector, dependent readings are a convincing argument in favor of a number-neutral semantics of *des* NPs, for it is clear that the object does not have a plural interpretation with respect to a particular value for the subject variable. Spector develops a syntactic feature-checking approach, in which the plurality feature on *des* is not necessarily semantically plural if it is checked by the plurality feature of the subject. In contrast to Roodenburg (2004b), I am not convinced by this argument, and neither is Farkas (this volume). Fortunately, an alternative account of these data is available. Bosveld-de Smet (1998) analyzes dependent plurals as an instance of the basic, cumulative meaning of *des* NPs. In combination with cumulative reference, the special character of the sentence derives from the predicate, which induces a one-one relation (a bijection) between the two sets. Laca and Tasmowski (2001, 2004) follow Bosveld-de Smet (1998) in their emphasis on the role of the predicate. If we spell out the interpretation of cumulativity and the bijection, we obtain the following result:

- (23) Des maraudeurs ont cueilli des fruits mûrs. (cumulative)  
Indef\_pl marauders have picked indef\_pl ripe fruits.  
 $\exists X(\text{Marauders}(X) \ \& \ \exists Y \text{ Ripe\_Fruits}(Y) \ \& \ \text{Pick}(X,Y))$
- (24) Les Français portent des cravates jaunes. (dependent)  
The French wear indef\_pl yellow ties.  
 $\exists_{\text{gen}}X \ \exists Y(\text{French}(X) \ \& \ \text{Yellow\_Ties}(Y) \ \& \ \text{Wear}(X,Y) \ \& \ XxY \ \text{a bijection})$

- $XxY$  is a bijection iff  
 $\forall x \forall y \in X \ \forall z \in Y ((\langle x,z \rangle \in XxY \ \& \ \langle y,z \rangle \in XxY) \rightarrow x = y)$  and  
 $\forall z \in Y \ \exists x \in X (\langle x,z \rangle \in XxY)$

(23) repeats (12b) above, and illustrates that *des* NPs often have cumulative reference (cf. Bosveld-de Smet 1998). (24) provides a version of (22c). According to Bosveld-de Smet, the dependent reading is a combination of cumulativity and an interpretation of the predicate as a bijection. What this means is that we have a generic set of Frenchmen, presumably derived by application of the kind formation type shift  $\cap$ , which generates the maximal set of intensionally defined instances of Frenchmen. De Swart and Farkas (2004) develop a semantics of generic sentences involving definite NPs that is in line with this view, so we refer the reader to that paper for details. The

most important observation for us is that the subject gets a cumulative interpretation, that is, we build up an intensionally defined set of individuals that we consider at the group level. The set of yellow ties also gets a group-level denotation under a cumulative interpretation of *des cravates jaunes*. So far, the representation of (24) is not crucially different from that of (23). The main difference is that we add the information that  $X \times Y$  is a bijection. What that means is spelled out in the definition of bijection below (24). The bottomline is that a bijection requires there to be a one-one relation between the atomic members of the two groups. Accordingly, every Frenchman in the generic group wears exactly one tie. The generic subject defines the set  $X$  as the maximal group of Frenchmen across times and worlds. The object is not generic, so it defines the set  $Y$  in relation to the set of Frenchmen. The set of yellow ties is thus dependent on the set of Frenchmen. I conclude that a semantic analysis in terms of a combination of cumulativity and bijection provides a viable alternative to Spector's syntactic feature checking approach. The question arises whether we can find arguments to decide between the two analyses. It turns out that Spector (2003) faces empirical problems that do not arise in the semantic account of Bosveld-de Smet (1998).

Spector's (2003) feature-checking approach accounts for the fact that *des* NPs can have a singular, atomic value with respect to a subject variable introduced by a plural NP. What it doesn't explain is that an interpretation of the sentence in which the denotation of  $N$  constitutes a singleton set of  $N$  is blocked. This is the counterpart for dependent readings of the pragmatic restriction on inclusive readings of plurals that Farkas (this volume) discusses. The possibility of a singleton set interpretation hardly arises in the context of examples like (21) and (22) above, but the restriction can be brought out in sentences involving a conjunction of proper names. First, we need to establish that a conjunction of proper names allows a dependent reading. Consider (25):

- (25) Jean et Marie ont des enfants très différents.  
 Jean and Marie have indef-pl children very different.  
 'Jean and Marie have very different children.'

(25) is true in various situations. It is possible that Jean and Marie are married, so they are the father and mother of a set of children that are very different from one another. In that case, they must be a family with more than one child, for the set of children must have more than one member to make (25) true. If Jean and Marie are not together, but they have children each with their own partner (not each other), there must also be a plural set of children. That is, Jean and Marie must both have at least one child. But it is possible that they each have only one child. This is the number neutral interpretation that suggests conjunctions of proper names are the kinds of expressions that can license the plurality feature of the *des* NP under Spector's approach. However, (25) requires *des enfants* to denote a plural set of individuals, not a singleton set. Obviously, this follows under Bosveld-de Smet's analysis, for the object must have cumulative reference, and cumulativity depends on plurality (cf. Scha 1984). However, under Spector's analysis, the plurality feature of the *des* NP loses its semantic plurality after checking by the subject. Accordingly, he would seem to permit a sentence like (25) to be true in a situation in which Jean and Marie are the parents of just one child, but it isn't. One might object that *différents* in (25) is the cause of the problem, but in fact that is not the case. It is true that *différents* helps to bring out the ban on singleton sets, but we find the same restriction in (26):

- (26) Jean et Marie ont des mères très sympathiques.  
 Jean and Marie have indef-pl mothers very nice.  
 ‘Jean and Marie have very nice mothers.’

If *des mères* is licensed by the conjunction of the proper names, it should be able to get a number-neutral interpretation itself. Indeed, world knowledge tells us people have one and only one mother, so a dependent reading is the most likely interpretation of the sentence. However, (26) lacks a reading in which Jean and Marie are brother and sister, children of the same mother, because in that scenario only a singleton set of mothers is involved. The singleton set interpretation is blocked for the bare plural in the English translation of (26) as well. I conclude that Spector’s feature-checking account of dependent readings does not provide the correct interpretation of the number-neutral reading of *des* after all. Even if the object is number neutral with respect to a particular subject variable, it is not number neutral as far as the set denoted by N is concerned. I conclude that the same objections Farkas (this volume) raises for Spector’s account of the inclusive reading of plurals in questions and *if/when*-clauses arise in dependent readings: *des* NPs block true atomic reference.

In sum, Spector and Roodenburg favor a syntactic explanation of dependent readings, but feature checking does not explain the plural nature of *des* NPs, as evidenced by the examples involving the conjunction of proper names. Bosveld-de Smet (1998) offers a semantic alternative that has the advantage of restricting dependent readings to sentences in which (i) the *des* NP in object position gets a cumulative (i.e. inherently plural) interpretation; (ii) the subject also allows a cumulative reading (ruling out distributive quantifiers like *chaque*, cf. Laca and Tasmowski 2001), and (iii) the predicate entails a bijection (supported by world knowledge). I conclude that there is no reason to abandon an analysis of bare plurals and *des* NPs in terms of semantic plurality in view of Bosveld-de Smet’s semantic account of dependent readings. Crucially, the pragmatic explanation of the inclusive plural uses Farkas (this volume) offers, and the semantic analysis of dependent readings in terms of cumulativity+bijection together allow us to maintain our theory of plurality of *des* NPs, developed in section 3.1 above.

As pointed out in the beginning of this section, Spector offers four arguments in favor of his analysis of *des* in terms of number-neutral interpretations under a syntactic checking relation. The fourth argument concerns habitual sentences. I don’t think the observations he makes require us to revise our theory of morphological and semantic plurality, but it provides a stepping stone towards our analysis of *des* NPs in habitual sentences, so we will discuss his observations in section 3.3.

### 3.3 Habitual sentences as a temporal version of the dependent readings

For Spector, the fourth argument in favor of a number-neutral interpretation of *des* NPs is provided by the distribution of episodic and habitual readings for the minimal pairs in (27) and (28):

- (27) a. Quand Paul est nerveux, il fume des cigarettes.      Hab/?Epis  
 When Paul is nervous, he smokes indef\_pl cigarettes.  
 b. Paul fume des cigarettes.      Hab/Epis  
 Paul smokes indef\_pl cigarettes.  
 ‘Paul smokes cigarettes./Paul is smoking cigarettes.’

- (28) a. Quand Paul est nerveux, il fume une cigarette. Hab/?Epis  
 When Paul is nervous, he smokes a cigarette.  
 b. Paul fume une cigarette. \*Hab/Epis  
 Paul smokes a cigarette.  
 ‘Paul is smoking a cigarette.’

Kleiber (1987), de Swart (1985, 1987) and others have established a contrast between the ‘bare’ habitual construction in (27b) and the construction with an explicit when-clause in (27a).<sup>8</sup> If there is an overt restriction in the form of a when-clause, the contrast between singular and plural indefinites is neutralized, and both favor a habitual interpretation in the right context.<sup>9</sup> The ‘bare’ habitual in (27b) just asserts the existence of a certain habit. Bare habitual readings are blocked for singular indefinites, so (28b) only has an episodic interpretation.<sup>10</sup> In Spector’s view, the habitual operator in the ‘bare’ habitual construction functions as a licenser for the *des* NP in object position. Accordingly, *des* gets a number-neutral interpretation in (27b). If the bare habitual would involve a scope relation, (28b) should be equally good under a habitual interpretation, but it isn’t, so the restriction of (28b) to an episodic interpretation constitutes an important argument in favor of the syntactic checking procedure. In the a-sentences, a different construction is involved, and we obtain a regular scope configuration. A habitual operator defined in terms of a default quantifier ranging over situations takes wide scope. There is no reason to block singular indefinites, so (27a) and (28a) can both get a habitual interpretation.

The contrast highlighted by Spector (2003) is well known, but has proven difficult to explain. So the fact that Spector offers an account is interesting by itself. However, section 3.2 raised some problems for his syntactic analysis of dependent readings, and argued that a semantic alternative in terms of cumulativity+bijection fared just as well, if not better. The question arises whether we can extend the semantic approach to habitual sentences. I think we can. The basic idea would be to treat bare habituals as a temporal version of the dependent reading. In fact, Bosveld-de Smet (1998: 254 sqq) suggests an analysis along these lines. Crucially, the bijection is now a one-one relation between individuals and events. This leads to the representation of bare habituals as in (29):

- (29) Paul répare des bicyclettes.  
 Paul repairs indef\_pl bikes.  
 $\exists_{\text{hab}}E \exists X(\text{Bikes}(X) \ \& \ \text{Repair\_by\_Paul}(E, X) \ \& \ E \times X \text{ is a bijection})$

The bare habitual operator is here viewed as a definite operator over events (cf. Ferreira 2005). Accordingly introduces a generic, intensionally defined maximal set of events *E*. The *des* NP gets a cumulative interpretation, and introduces a set of bikes. The relation between the set of bikes and the set of events of repairing by Paul is

<sup>8</sup> Focus can have the same effect of creating a tripartite structure as a when-clause, but will not be discussed here. Cf. de Swart (1991) for extensive discussion of the relation between constructions with when-clauses and focus related interpretations in sentences with an overt adverb of quantification.

<sup>9</sup> Aspect and pragmatics need to support the habitual interpretation. Episodic interpretations of when-clauses are usually blocked for sentences in the present tense. Cf. Abeillé et al. (2004) for discussion of the role of tense and aspect in sentences containing expressions of frequency and iteration in French.

<sup>10</sup> The simple present tense in French is compatible with an episodic reading. In English, we would strongly prefer the use of the present progressive in this environment.

defined as a bijection, which leads to a one-one relation between events and atomic objects. The structure of (29) is clearly the same as that of the dependent readings in (24). The main difference is that (24) involves a relation between individuals, whereas the dependency in (29) involves pairs of individuals and events.

How does this approach account for the fact that sentences like (28b) and (30) do not have a habitual interpretation?

- (30) Paul répare une bicyclette.  
Paul repairs a bike.

At this point, the explanation is straightforward: (30) does not have a bare habitual interpretation, because we cannot construe dependent interpretations with indefinite singulars. Kamp and Reyle (1993: 331) discuss the contrast in (31) as evidence for their claim that indefinite singulars do not enter dependency relations:

- (31) a. Most students bought books that would keep them fully occupied during the next two weeks.  
b. Most students bought a book that would keep them fully occupied during the next two weeks.

(31a) has a dependent reading, (31b) does not. We can transpose this contrast into French, and observe that (32a) has a dependent reading, but (32b) does not:

- (32) a. La plupart des étudiants achetaient des livres à lire pendant les vacances.  
b. La plupart des étudiants achetaient un livre à lire pendant les vacances.

The restriction of bare habitual readings to plural indefinite objects of the form *des* N, rather than singular indefinite objects is then a temporal version of the restriction of dependent readings to *des* NPs. We should add, that plurality by itself is not enough to license dependency, for indefinites like *quelques*, *plusieurs* allow cumulative reference (cf. Scha 1984), but do not enter dependency relations, as evidenced by (33a) (from Kamp and Reyle 1993: 331), and its French counterpart (33b):

- (33) a. Most students bought several books that would keep them fully occupied during the next two weeks.  
b. La plupart des étudiants achetaient plusieurs livres à lire pendant les vacances.

If bare habituals constitute a temporal version of the dependent reading, we expect other indefinites besides singular indefinites to also block this kind of interpretation. This expectation is borne out by the restriction of examples like (34) to an episodic interpretation. No habit can be described by these sentences:

- (34) a. Paul répare trois bicyclettes/quelques bicyclettes/la bicyclette/les bicyclettes.  
Paul repairs three bikes/some bikes/the bike/the bikes.  
b. Il fume trois cigarettes/quelques cigarettes/les cigarettes.  
He smokes three cigarettes/some cigarettes/the cigarettes.

The missing ingredient is the one-one relation established between pairs of individuals in (33) and pairs of an event and an individual in (34), that needs to be induced by the predicate and world knowledge. In terms of the analysis developed in this paper, either strong quantificational force or determined reference is enough to block this dependency. The weak quantificational force of *des* in combination with a lack of determined reference allows for the possibility of a dependency relation. In that sense, the bare habitual construction constitutes the mirror image to the telicity/atelicity contrast discussed in section 2.

Please note that the bare habitual reading is not to be confused with cases in which definite singulars or plurals can be the object of a habitual sentence, as in (35):

- (35) a. Paul fume la pipe.  
       Paul smokes the pipe.  
       b. Paul chasse les perdrix.  
       Paul hunts the partridges.

As pointed out by Laca (1990) and Bosveld-de Smet (1998), these sentences involve a direct relation between an individual and a kind. This implies that the structure is different from the bare habitual, and no dependency is involved. In English, the distinction between bare habituals like (29) and relations between individuals and kinds as in (35) may be difficult to establish. On the one hand, the bare plural has weak quantificational force and can have a cumulative interpretation (just like *des* NPs), which explains why it can participate in dependency relations (cf. 31a above) and bare habituals like ‘Paul smokes cigarettes’. But on the other hand it can also refer to kinds (unlike French *des* NPs), and show up in environments like (35). French helps us to tease these readings apart.

#### 4. Conclusions

In this paper, I made two basic claims about the semantics of *des*, namely that *des* NPs are semantically plural, and *des* is an indefinite article. I argued that both definite and indefinite plurals have weak quantificational force, which I take to mean that they do not provide cardinality information on the relevant set beyond the indication that we are dealing with a discourse referent that allows group values. I adopted an account of the definite/indefinite contrast in terms of markedness. Definites have determined reference; indefinites lack this property. The special combination of weak quantificational force and lack of determined reference was shown to be responsible for the fact that *des* NPs are [-SQA], and lead to an aspectual characterization of the sentence as atelic. It is also responsible for the fact that *des* NPs enter dependency relations, which license their use in bare habitual sentences.

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